

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Original) An OVPN system comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN (Optical Virtual Private Network) and a second signal format which is used in the OVPN are different from each other; and

an OVPN terminating device for containing the user's device, wherein the OVPN terminating device is provided with:

a registering section from the user's device for a first signal format type which is used in the user's device together with an IP address of the user's device and a VPNID;

a notifying section for notifying contents of the registration to other OVPN terminating device which controls the same VPNID as the user's device;

a retrieving section for the first signal format type which corresponds to the IP address and the VPNID) in the user's device according to a calling connection request from the user's device by referring to the information which is registered by the registering section, and

a selecting section for selecting the first signal format which is used by the user's device according to a result in the retrieving section when data is transported from the user's device.

2. (Original) An OVPN terminating device for containing a user's device which joins an OVPN comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a registering section from the user's device for a first signal format type which is used in the user's device together with an IP address of the user's device and a VPNID;

a notifying section for notifying contents of the registration to other OVPN terminating device which controls the same VPNID as the user's device;

a retrieving section for the first signal format type which corresponds to the IP address and the VPNID in the user's device according to a calling connection request from the user's device by referring to the information which is registered by the registering section, and

a selecting section for selecting the first signal format which is used by the user's device according to a result in the retrieving section when data is transported from the user's device.

3. (Original) An OVPN system comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second

signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN (Optical Virtual Private Network) and a second signal format which is used in the OVPN are different from each other; and

an OVPN terminating device for containing the user's device;

a registering section for registering a first signal format type which is sent from the user's device so as to be used in the user's device together with an IP address of the user's device and a VPNID;

a notifying section for notifying the registered contents to other OVPN terminating device which controls a device which receives a calling connection request when the calling connection request arrives from the user's device;

a selecting section for selecting the first signal format which is used in a device which receives the calling connection request with reference to the registered contents for a function for corresponding to the other OVPN terminating device;

a receiving and selecting section which receives the first signal format type information which is used in the device which receives the calling connection request from the other OVPN terminating device so as to respond to a notice from the notifying section and selects the first signal format type which is used in the user's device according to the format type information.

4. (Original) An OVPN terminating device for containing a user's device which joins an OVPN comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second

signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a registering section for registering a first signal format type which is sent from the user's device so as to be used in the user's device together with an IP address of the user's device and a VPNID;

a notifying section for notifying the registered contents to other OVPN terminating device which controls a device which receives a calling connection request when the calling connection request arrives from the user's device;

a selecting section for selecting the first signal format which is used in a device which receives the calling connection request with reference to the registered contents for a function for corresponding to the other OVPN terminating device;

a receiving and selecting section which receives the first signal format type information which is used in the device which receives the calling connection request from the other OVPN terminating device so as to respond to a notice from the notifying section and selects the first signal format type which is used in the user's device according to the format type information.

5. (Currently Amended) An OVPN system comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN (Optical Virtual Private Network) and a second

signal format which is used in the OVPN are different from each other; and

an OVPN terminating device for containing the user's device, wherein

the OVPN terminating device is provided with:

a registering section for registering at least a first signal format type which is sent from the user's device so as to be used in the user's device together with an IP address of the user's device and a VPNID;

a notifying and selecting section for notifying the registered contents to other OVPN terminating device which controls the device which receives the calling connection request from the user's device when the calling connection request arrives from the user's device and selecting the first signal format type which can be used in the user's device handled between other OVPN terminating device and the user's own device commonly according to the registered contents;

a retrieving section which retrieves information indicating a vacancy of the converting section for the alternate converting operation both in the user's own device and other OVPN device when the first signal format type which is selected by the selecting section is different from a second signal format type; and

a selecting section which selects at least either one of the converting section for the alternate converting operation which is not occupied for the user's own device and other OVPN device according to the retrieving result by the retrieving section.

6. (Currently Amended) An OVPN terminating device for containing the user's device comprising:

a plurality of converting sections, which are disposed so as to correspond to

plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other;

a registering section for registering at least a first signal format type which is sent from the user's device so as to be used in the user's device together with an IP address of the user's device and a VPNID;

a notifying and selecting section for notifying the registered contents to other OVPN terminating device which controls the device which receives the calling connection request from the user's device when the calling connection request arrives from the user's device and selecting the first signal format type which can be used in the user's device handled between other OVPN terminating device and the user's own device commonly according to the registered contents;

a retrieving section which retrieves information indicating a vacancy of the converting section for the alternate converting operation both in the user's own device and other OVPN device when the first signal format type which is selected by the selecting section is different from a second signal format type; and

a selecting section which selects at least either one of the converting section for the alternate converting operation which is not occupied for the user's own device and other OVPN device according to the retrieving result by the retrieving section.

7. (Original) An OVPN terminating device according to any one of Claim 2, 4, or 6 wherein the registering section is provided with a section for registering a port

identifier for the user's own device which corresponds to at least a first signal format which is used in the user's device or an interface identifier together with the IP address of the user's device and the VPNID.

8. (Currently Amended) An OVPN terminating device according to ~~any one of Claims~~ Claim 2, 4, 6, or 7 which contains the converting section for the alternate converting operation in the user's own device.

9. (Currently Amended) A collective converting device comprising:
a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other; and

a section for performing the alternate converting operation which is disposed in the OVPN terminating device according to ~~Claims 2, 4, 6, and 7~~ Claim 2 commonly.

10. (Currently Amended) An optical communication network which is provided with:

an OVPN system according to ~~any one of Claim 1, 3, and 5~~ Claim 1;

an OVPN terminating device according to ~~any one of Claim 2, 4, 6, 7 and 8~~ Claim 2; and

a collective converting device according to Claim 9.

11. (Cancelled)

12. (Cancelled)

13. (Currently Amended) An OVPN terminating device for containing a user's device which joins an OVPN comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a retrieving section for detecting whether or not there is a section for performing the alternate converting operation so as to correspond to the signal format type under condition the first signal format is different from the second signal format when the first signal format type information which is used in the user's device is received;

a generating section for generating an IP address and a VPNID to the user's device when there is a section for performing the alternate converting operation as a result of the retrieving operation by the retrieving section; ~~[[and]]~~

a registering section for registering the IP address, the VPNID generated by the generating section, and the first signal format type information which is used by the user's device to which the IP address and the VPNID are added; and

a notifying section for notifying a first signal format type information which corresponds to a vacant converting section for performing the alternate converting operation to the user's device when the retrieving result in the retrieving section indicates that there is not a section for performing the alternate converting operation.

14. (Original) An OVPN terminating device according to Claim 13 comprising:

a selecting section for selecting a signal format which is used by the user who receives the calling connection request according to the first signal format type information which is used by the user's device having the IP address, included in the calling connection request, from which the calling connection request is transmitted when the calling connection request is received from the user's device; and

a transmitting section for transmitting the format type information which is selected by the selecting section to the user who receives the calling connection request together with the calling connection request.

15. (Original) An OVPN terminating device according to Claim 14 further comprising a notifying section which receives a response to the calling connection request so as to determine whether or not the signal format which is used by the user's device and the signal format which is employed by the user who receives the calling connection request coincides and notify that the signal formats do not coincide each other for setting up a circuit to the user's device.

16. (Cancelled)

17. (Original) An OVPN terminating device according to Claim 13 comprising:
an inquiring section for inquiring whether or not it is possible to change the
vacant converting section for performing the alternate converting operation to other
user's device which is under operation when the retrieving result by the retrieving
section indicates that that there is not a section for performing the alternate converting
operation; and

a requesting and generating section for requesting for changing the converting
section for performing the alternate converting operation to other user device when the
retrieving result by the retrieving section indicates that there is a section for performing
the alternate converting operation and generating the IP address and the VPNID for the
user's device.

18. (Currently Amended) A base point device which is disposed between the
OVPN system according to Claim 1 ~~or 2~~ and the user's device which is contained in the
OVPN system or in a OVPN terminating device or between the OVPN system according
to Claim 1 or 2 and the OVPN terminating device according to any one of Claims 3 to 7
comprising:

a determining section for determining a first signal format type which is used in
the user's device;

a transmitting section for transmitting the format type information which is
determined by the determining section to the OVPN terminating device; and

a maintaining section for maintaining the generated IP address and the VPNID.

19. (Original) An OVPN system comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other;

a retrieving section for detecting whether or not there is a section for performing the alternate converting operation so as to correspond to a plurality of the signal format types under condition the first signal format is different from the second signal format when the first signal format type information which is used in the user's device is received;

a generating section for generating a plurality of IP addresses which correspond to a plurality of format types and a VPNID to the user's device when there is a section for performing the alternate converting operation as a result of the retrieving operation by the retrieving section; and

a registering section for registering the VPNID which is added by the generating section, a plurality of IP addresses, and a plurality of the first signal format type information which are used by the user's device to which the VPNID and a plurality of the IP addresses are added; and

a section for employing the converting section for performing the alternate converting operation of the first signal format and the second signal format which

correspond to the IP address which is contained in the calling connection request which is transmitted for a communication flowing the calling connection request by referring to the registering section when the calling connection request arrives from the user's device.

20. (Original) An OVPN terminating device for containing a user's device which joins an OVPN comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a retrieving section for detecting whether or not there is a section for performing the alternate converting operation so as to correspond to a plurality of the signal format types under condition the first signal format is different from the second signal format when the first signal format type information which is used in the user's device is received;

a generating section for generating a plurality of IP addresses which correspond to a plurality of format types and a VPNID to the user's device when there is a section for performing the alternate converting operation as a result of the retrieving operation by the retrieving section; and

a registering section for registering the VPNID which is added by the generating section, a plurality of IP addresses, and a plurality of the first signal format type

information which are used by the user's device to which the VPNID and a plurality of the IP addresses are added; and

a section for employing the converting section for performing the alternate converting operation of the first signal format and the second signal format which correspond to the IP address which is contained in the calling connection request which is transmitted for a communication flowing the calling connection request by referring to the registering section when the calling connection request arrives from the user's device.

21. (Currently Amended) A base point device which is disposed between the OVPN system according to Claim 9 and the user's device which is contained in the OVPN system or in a OVPN terminating device or between the OVPN terminating device according to Claim ~~409~~ and the user's device which is contained in the OVPN system or in a OVPN terminating device comprising:

a determining section for determining a first signal format type which is used in the user's device;

a transmitting section for transmitting the format type information which is determined by the determining section to the OVPN terminating device; and

a maintaining section for maintaining the a plurality of generated IP address, the VPNID, and a plurality of the first signal format type information.

22. (Original) An OVPN terminating device according to any one of Claim 13,14, 15, 16, 17, or 20 which is provided with the converting section for performing the alternate converting operations in the user's own device.

23. (Currently Amended) A base point device according to Claim 18-~~or~~ 24 which is provided with:

a separating section for separating the user's device and the OVPN; and

a returning section for returning a test beam which is transmitted from the OVPN back to the OVPN.

24. (Original) A collective converting device comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other; and

a section for performing the alternate converting operation which is disposed in the OVPN terminating device according to any one of Claim 13,14,15,16,17, or 25 commonly.

25. (Currently Amended) An optical communication network which is provided with:

an OVPN system according to any one of Claim 11,~~12,~~~~or~~ 49;

an OVPN terminating device according to ~~any one of Claim 13, 14, 15, 16, 17 20,~~
~~or 22~~Claim 13;

a base point device according to Claim 18 ~~or 24;~~ and

a collective converting device according to Claim 24.

26. (Currently Amended) An OVPN system, according to Claim 13, further
comprising[[:]]

~~—— a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other;~~

~~—— a detecting section for detecting whether or not the user's device is connected;~~

~~—— a generating section for adding the IP address and the VPNID to the user's device according to a control channel when the retrieving result in the detecting section indicates that the user's device is connected;~~

a receiving and determining section for receiving at least a test signal which is transmitted via a data channel by using the IP address from the user's device and determining at least the first signal format type which belongs to the user's device[[:]]

~~—— a retrieving section for retrieving whether or not there is a converting section for performing the alternate converting operation so as to correspond to the format type according to the determining result by the determining section when the first signal~~

format type which is used by the user's device is different from the second signal format type; and

~~—— a registering section for registering the IP address which is added by the generating section, the VPNID, and the first signal format type information which is determined by the determining section which is used by the user's device to which the VPNID and the IP address are added when the retrieving result by the retrieving section indicates that there is a converting section for performing the alternate converting operation.~~

27. (Original) An OVPN terminating device for containing a user's device which joins an OVPN comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a detecting section for detecting whether or not the user's device is connected;

a generating section for adding the IP address and the VPNID to the user's device according to a control channel when the retrieving result in the detecting section indicates that the user's device is connected;

a receiving and determining section for receiving at least a test signal which is transmitted via a data channel by using the IP address from the user's device and determining at least the first signal format type which belongs to the user's device;

a retrieving section for retrieving whether or not there is a converting section for performing the alternate converting operation so as to correspond to the format type according to the determining result by the determining section when the first signal format type which is used by the user's device is different from the second signal format type; and

a registering section for registering the IP address which is added by the generating section, the VPNID, and the first signal format type information which is determined by the determining section which is used by the user's device to which the VPNID and the IP address are added when the retrieving result by the retrieving section indicates that there is a converting section for performing the alternate converting operation.

28. (Original) An OVPN terminating device according to Claim 27 wherein the registering section is provided with a registering section for registering a port identifier or an interface identifier for the user's own device which corresponds to at least a first signal format which is used in the user's device commonly.

29. (Original) An OVPN terminating device according to Claim 27 or 28 which is provided with a converting section for performing the alternate converting operation in the user's own device.

30. (Currently Amended) A base point device which is disposed between the OVPN terminating device according to ~~any one of Claim 27 to 29~~Claim 27 and the user's device which is contained in the OVPN terminating device comprising:

a detecting section for detecting whether or not the user's device is connected to the base point device;

a receiving and maintaining section for receiving the IP address and the VPNID which are added to the base point device via the control channel from the OVPN terminating device; and

a transmitting section for transmitting the test signal for at least the first signal format which is used by the user's device to the OVPN terminating device via the data channel after the IP address and the VPNID are added to the base point device.

31. (Original) A base point device according to Claim 30 which is provided with:

a separating section for separating the user's device and the OVPN; and

a returning section for returning a test beam which is transmitted from the OVPN back to the OVPN.

32. (Currently Amended) A collective converting device comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used

by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other; and

a section for performing the alternate converting operation which is disposed in the OVPN terminating device according to Claim 2 ~~or 3~~ commonly.

33. (Currently Amended) An optical communication network which is provided with:

an OVPN system according to Claim 26, or an OVPN terminating device according to ~~any one of Claims 27 to 29~~ Claim 27, or a base point device according to Claim 30 or 31, or a collective converting device according to Claim 7.

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Currently Amended) An OVPN system, according to Claim 13, further comprising:

~~—— a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format in a layer 1 which is employed in a user's device which joins an OVPN and a second signal format which is prior to the layer 1 which is employed in the OVPN alternately, wherein~~

~~—— the converting section for performing the alternate converting operation is provided with:~~

a transmitting section for transmitting the first signal format which is transmitted from the user's device to the OVPN by encapsulating the first signal format by the second signal format, and

a transmitting section for transmitting the encapsulated signal which is encapsulated by the second signal format which is transmitted from the OVPN to the user's device by de-encapsulating according to the first signal format.

41. (Original) An OVPN system according to Claim 40 wherein the transmitting section to the OVPN is provided with a multiplying section for multiplying a plurality of signals according to the second signal format.

42. (Original) An OVPN system according to Claim 40 wherein the transmitting section to the OVPN is provided with a dividing and encapsulating section for dividing and encapsulating a series of signals according to the first signal format into a plurality of signals according to the second signal format.

43. (Original) An OVPN terminating device for containing a user's device which joins an OVPN comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other; and

the converting section for performing the alternate converting operation in the OVPN terminating device, wherein

the converting section for performing the alternate converting operation is provided with:

a transmitting section for transmitting the first signal format which is transmitted from the user's device to the OVPN by encapsulating the first signal format by the second signal format, and

a transmitting section for transmitting the encapsulated signal which is encapsulated by the second signal format which is transmitted from the OVPN to the user's device by de-encapsulating to the first signal format.

44. (Original) An OVPN terminating device according to Claim 43 wherein the transmitting section to the OVPN is provided with a multiplying section for multiplying a plurality of signals according to the second signal format.

45. (Original) An OVPN terminating device according to Claim 43 wherein the transmitting section to the OVPN is provided with a dividing and encapsulating section for dividing and encapsulating a series of signals according to the first signal format into a plurality of signals according to the second signal format.

46. (Original) A collective converting device comprising:
a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format in a layer 1 which is employed in a user's device which joins an OVPN and a second signal format which is prior to the layer 1 which is employed in the OVPN alternately, and
the converting section for performing the alternate converting operation for the OVPN terminating device according to any one Claim 43 to 45 commonly.

47. (Currently Amended) An optical communication network which is provided with:

an OVPN system according to ~~any one of Claims 40 to 42~~Claim 40, or an OVPN terminating device according to ~~any one of Claims 43 to 45~~Claim 43, or a collective converting device according to Claim 46.

48. (Currently Amended) An OVPN system according to Claim 13, further comprising[[:]]

~~— a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second~~

signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other; and

——a receiving and transmitting section for receiving a notice that the user's device is connected to the base point device via the control channel from the base point device which is disposed between the user's device and the OVPN and transmitting the IP address and the VPNID which are allocated to the user's device according to the base point device.

49. (Original) An OVPN terminating device for containing a user's device which joins an OVPN comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other; and

a receiving and transmitting section for receiving a notice that the user's device is connected to the base point device via the control channel from the base point device which is disposed between the user's device and the OVPN and transmitting the IP address and the VPNID which are allocated to the user's device according to the base point device.

50. (Original) An OVPN terminating device according to Claim 49 comprising:

a receiving section for receiving a receipt confirmation which is transmitted from a transmitting section for the IP address and the VPNID for the IP address and the VPNID; and

a transmitting section for transmitting a final connection confirmation for notifying the receipt of the receipt confirmation by the receiving section to the base point device.

51. (Original) An OVPN terminating device according to Claim 49 or 50 comprising:

a receiving and retrieving section for receiving the first signal format type information which is employed by the user's device according to the control channel after the final connection confirmation is transmitted so as to retrieving whether or not there is a converting section for performing the alternate converting operation so as to correspond to the format type; and

a registering section for registering the IP address and the VPNID which are allocated to the user's device, and the first signal format type information which is employed by the user's device when the retrieving result in the receiving and registering section indicates that there is a converting section for performing the alternate converting operation.

52. (Currently Amended) An OVPN terminating device according to ~~any one of Claims 49 to 51~~ Claim 49, which is provided with the converting section for performing the alternate converting operation in the OVPN terminating device.

53. (Currently Amended) A base point device which is disposed between the OVPN terminating device according to ~~any one of Claim 49 to 51~~Claim 49 and a user's device which is contained in the OVPN terminating device comprising:

- a detecting section for detecting whether or not the user's device is connected to the base point device;

- a notifying section for notifying at least one of the OVPN terminating device via the control channel that it is detected that the user's device is connected to the base point device;

- a receiving section for receiving the IP address and the VPNID which are allocated to the user's device from the OVPN terminating device via the control channel;

- a transmitting section for transmitting a receipt confirmation that the receiving section received the IP address and the VPNID to the OVPN terminating device; and

- a transmitting section the first signal format type information which is used by the user's device, the IP address, and the VPNID to the OVPN terminating device which received the final connection receipt for the receipt confirmation via the control channel.

54. (Original) A base point device according to Claim 53 comprising:

- a determining section for determining the first signal format type information which is employed in the user's device; and

- a transmitting device for transmitting the format type information which is determined by the determining section to the OVPN terminating device.

55. (Currently Amended) A base point device according to Claim 53 or 54 comprising:

a separating section for separating the user's device and the OVPN; and

a returning section for returning a test beam which is emitted from the OVPN back to the OVPN.

56. (Currently Amended) A collective converting device comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other; and

a converting section for the alternate converting operation for the OVPN terminating device according to ~~any one of Claims 49 to 52~~Claim 49 commonly.

57. (Currently Amended) An optical communication network which is provided with:

an OVPN system according to Claim 48, or an OVPN terminating device according to ~~any one of Claim 49 or 52~~Claim 49, or a base point device according to ~~any one of Claims 53 to 55~~Claim 53, or a collective converting device according to Claim 56.

58. (Original) A base point device which is disposed between an OVPN and a user's device comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a multiplying and transmitting section for multiplying and transmitting a plurality of optical wavelength signals which are used in the user's device to the OVPN;

a separating and transmitting section for separating and transmitting the multiplied optical wavelength signals which arrive from the OVPN; and

a notifying section for notifying the OVPN of information for the wavelength which are transmitted under a multiplied condition so as to be used in a plurality of the user's devices.

59. (Original) An OVPN terminating device for containing the user's device via the base point device according to Claim 58 comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a multiplying and transmitting section for multiplying and transmitting a

plurality of optical wavelength signals which are used in the user's device to the OVPN;
and

a separating and transmitting section for separating and transmitting the multiplied optical wavelength signals which arrive from the base point device so as to transmit to a predetermined course according to information which is notified from the notifying section.

60. (Original) A base point device which is disposed between an OVPN and a user's device comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a converting and transmitting section for converting a serial signal which is transmitted from the user's device into a plurality of parallel signals so as to transmit to the OVPN;

a converting and transmitting section for converting a plurality of the parallel signals which arrive from the OVPN into a serial signal so as to transmit to the user's device; and

a notifying section for notifying the OVPN of information for the topology of the parallel signals and information that the serial signals are converted to the parallel signals.

61. (Original) An OVPN terminating device for containing the user's device via the base point device according to Claim 60 comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other; and

an inputting section for inputting the parallel signals which are divided from a series of serial signals in to a plurality of the converting section for performing the alternate converting operation so as to correspond to the first signal format type information according to the information which is notified from the notifying section in the base point device according to Claim 60.

62. (Original) A base point device which is disposed between an OVPN and a user's device comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a multiplying and transmitting section for multiplying the parallel signal which is converted from the serial signal which is transmitted from the user's device so as to

transmit to the OVPN;

a separating and transmitting section for separating the multiplied wavelength signals which arrive from the OVPN into the parallel signals and converting the parallel signals into the serial signals so as to transmit to the user's device; and

a notifying section for notifying the OVPN of the information that the serial signals are converted to the parallel signals, the information for a topology of the parallel signals, and the information that the parallel signals are transmitted under wavelength-multiplied condition.

63. (Original) An OVPN terminating device for containing the user's device via the base point device according to Claim 62 comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a multiplying and transmitting section for multiplying the parallel signals which arrive from the OVPN as to transmit to the base point device;

a separating and transmitting section for separating the multiplied optical wavelength signals which arrive from the base point device so as to transmit to the OVPN as the parallel signals; and

an inputting section for inputting the parallel signals which are divided from a the multiplied wavelength signals into a plurality of the converting section for

performing the alternate converting operation so as to correspond to the first signal format type information according to the information which is notified from the notifying section in the base point device.

64. (Original) An OVPN system comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other,

wherein at least a part of the converting sections for performing the alternate converting operation are provided with converting sections for converting a series of serial signals according to the first signal format which are transmitted from the user's device into a plurality of parallel signals in the OVPN according to the second signal format and converting a plurality of the parallel signals according to the second signal format directed to the user's device from the OVPN into a series of serial signals according to the first signal format alternately.

65. (Original) An OVPN terminating device for containing the user's device which joins the OVPN comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used

by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a converting section for performing the alternate converting operation in the OVPN terminating device,

wherein at least a part of the converting sections for performing the alternate converting operation include converting sections for converting a series of serial signals according to the first signal format which are directed to the OVPN from the user's device into a plurality of parallel signals in the OVPN according to the second signal format and converting a plurality of the parallel signals according to the second signal format directed to the user's device from the OVPN into a series of serial signals according to the first signal format alternately.

66. (Original) An OVPN terminating device according to any one of Claims 59, 61, or 63 which is provided with the converting section for performing the alternate converting operation in the OVPN terminating device.

67. (Original) A base point device according to any one of Claim 58, 60, or 62 which is provided with:

a separating section for separating the user's device and the OVPN; and

a returning section for returning a test beam which is transmitted from the OVPN back to the OVPN.

68. (Original) A collective converting device comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OWN and a second signal format which is used in the OVPN are different from each other; and

a section for performing the alternate converting operation which is disposed in the OVPN terminating device according to any one of Claim 59, 151, or 63 commonly.

69. (Currently Amended) An optical communication network which is provided with:

a base point device according to ~~any one of Claim 58, 60, 62 or 67~~ Claim 58, or an OVPN terminating device according to ~~any one of Claim 59, 61, 63, or 65~~ Claim 59, or a collective converting device according to Claim 68.

70. (Original) A base point device which is disposed between an OVPN system and a user's device comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other;

a recording section for recording a group for the base point device which relates to a common VPNID;

a detecting section for detecting an occurrence of a failure in a control channel and a data channel;

a requesting section for requesting that other base point device in a same group should perform processes which is supposed to be performed by the detecting section which has a failure with reference to the recording section.

71. (Original) A base point device which is disposed between an OVPN terminating device for containing a user's device which joins the OVPN and the user's device and connected to a plurality of OVPN terminating devices comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins an OVPN and a second signal format which is used in the OVPN are different from each other;

a recording section for recording a group for the OVPN terminating device which relates to a common VPNID;

a detecting section for detecting an occurrence of a failure in a control channel and a data channel;

a requesting section for requesting that other OVPN terminating device in a same group should perform processes which is supposed to be performed by the OVPN terminating device which has a failure in the control channel with reference to the recording section when the detecting section detects the occurrence of the failure.

72. (Original) A base point device according to Claim 70 or 71 which is provided with:

- a separating section for separating the user's device and the OVPN; and
- a returning section for returning a test beam which is transmitted from the OVPN back to the OVPN.

73. (Original) An OVPN terminating device for containing a user's device which joins an OVPN comprising:

a plurality of converting sections, which are disposed so as to correspond to plural different first signal formats, for converting a first signal format and a second signal format alternately under conditions in which the first signal format which is used by a user's device which joins the OVPN and a second signal format which is used in the OVPN are different from each other;

a recording section for recording a group for the OVPN terminating device which relates to a common VPNID;

a detecting section for detecting an occurrence of a failure in a control channel and a data channel;

a requesting section for requesting that other OVPN terminating device in a same group should perform processes which is supposed to be performed by the OVPN terminating device which has a failure in the control channel with reference to the recording section when the detecting section detects the occurrence of the failure.

74. (Currently Amended) An optical communication network which is provided with a base point device according to Claim 70 ~~or 72~~, or the OVPN terminating device according to Claim 73.